FINAL ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT FOR:

THE LOS UTES ACEQUIA PIPELINE PROJECT SANDOVAL COUNTY, NEW MEXICO

US Army Corps of Engineers®
Albuquerque District

Prepared By:
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FINDING OF NO SIGNIFICANT IMPACT

FOR THE LOS UTES ACEQUIA REHABILITATION PROJECT

The U.S. Army Corps of Engineers (Corps), Albuquerque District, in cooperation with the State Engineer's Office of the State of New Mexico, the Natural Resources Conservation Service (NRCS), and the Los Utes Acequia Association, are planning a project to rehabilitate the Los Utes Acequia system.

The De Los Utes Acequia Diversion, and associated ditch system is located along Los Utes Creek in Sandoval County, New Mexico (see project maps, figures 1 and 2). The acequia diversion is approximately 4 miles northeast of New Mexico State Hwy 550 and the village of Cuba, Sandoval County, New Mexico. The project area is located entirely on private land owned by members of the Acequia Association.

The proposed rehabilitation work on the Los Utes Acequia will be conducted under Section 1113 the Water Resources Development Act of 1986 (Public Law 99-662; 33 U.S.C. 2201 et. seq.), as amended. The Act authorizes the Acequia Rehabilitation Program for the restoration and rehabilitation of irrigation ditch systems (acequias) in New Mexico. Section 215 of the Flood Control Act of 1968, Public Law 90-483, as amended, provides that the secretary of the Army may enter into an agreement to credit or reimburse the costs of certain work accomplished by states or political subdivisions thereof, which later is incorporated into an authorized project. The Secretary of the Army, acting through the Chief of Engineers, and, when he/she determines it to be in the public interest, may enter into agreements providing for reimbursement to States or political subdivisions thereof for work to be performed by such non-Federal public bodies at water resources development projects authorized for construction under the Secretary of the Army and the supervision of the Chief of Engineers.

The Los Utes Acequia provides irrigation water to agricultural producers on approximately 181 acres of land and its' ditches have been in operation since the early 1800's. Because the Los Utes Ditch is earthen, water losses occur from seepage through porous soils and holes in the bank. Consequently, the ditch is inefficient, unreliable, and costly to maintain. Due to the amount of seepage and associated water losses, several irrigators lower in the acequia system rarely have usable water. Although a holistic hydraulic analysis of water loss has not been completed, it is estimated that 50-60% of the water diverted from Los Utes Creek is lost due to evaporation, evapo-transpiration and seepage through the ditch banks. The project will not change/affect water rights, or the amount of flows diverted from Los Utes Creek, as the creek is now entirely diverted for use in the acequia. It is expected that the amount of usable water originally diverted from Los Utes Creek will increase by implementing this project. The extent of this increase however has not been quantified, and is not completely or partially implied.

Two alternatives were considered in this EA to address problems of water delivery associated with the De Los Utes Acequia rehabilitation project:

Alternative 1: No action – No work will be performed by the Corps to address the current problems associated with the existing earthen ditch or replacement of deteriorating infrastructure

components. The acequia will continue to function as is at a high cost to the De Los Utes Acequia Association in monetary terms of operation and maintenance.

Alternative 2: Implementation of the proposed action consisting of: Replacing 1545 feet of existing open earthen ditch with 12'' diameter PVC pipe, rebuilding two lateral diversion structures (tap-boxes), which service adjacent pastureland/cropland, and the installation of a 12-inch diameter sluice box to mitigate sediment accrual and deposition in the newly installed pipeline (see figures 1 & 2 for proposed project component locations).

No fill material will be introduced to Los Utes Creek or other waters of the United States during or after construction of this project. There are no delineated wetlands associated with this project. Thus, the project complies with Executive Order 11990, Protection of Wetlands.

Executive Order 11988 (Floodplain Management) provides Federal guidance for activities within the floodplains of inland and coastal waters. The proposed activities will not adversely affect stream hydrology, existing flow patterns, or cause increases in the extent, intensity and or duration of flooding events. No additional development or disturbance of the floodplain is likely to result from this project. Therefore, the proposed action complies with Executive Order 11988.

The De Los Utes Acequia is considered eligible for inclusion to the National Register of Historic Places under Criterion (a) of 36 CFR 60.4. The proposed disturbances will be confined to two tap-boxes and 1,545 feet of the acequia itself, which will be altered from an open earth ditch to a buried pipe. The project has the potential to affect one historical element of the acequia, the "open ditch" design. However, the two places where the ditch runs near highly visible areas will be left open for aesthetic purposes. The proposed project will not affect other historic elements such as alignment and function, which contribute to the ditch's eligibility to the National Register. The two tap-boxes are recent, and do not contribute to the historic character of the acequia. No Traditional Cultural Properties are known to exist in the area. Based on this information, the Corps is of the opinion that there will be "No Adverse Effect to Historic Properties" by the proposed undertaking or on the historic and cultural resources of the region.

The planned action will provide the De Los Utes Acequia Association with reliable irrigation water to all authorized users. Additionally, the project will improve the overall infrastructure of the acequia system. Since the project will be implemented during the late fall and or winter months during plant dormancy and non-migratory bird periods, only short term negligible effects to land use, aesthetics, soils, air, noise, vegetation, and wildlife will occur during construction. No impacts will occur to climate, wetlands, waters of the U.S., special status species, floodplains, socioeconomics, environmental justice or cultural resources. The project will not affect water quality in Los Utes Creek as the entire creek is diverted for irrigation purposes. The project will have benefits to soil stability along the acequia system, land use and water resources. The proposed project will not result in any moderate or significant, short-term, long-term or cumulative adverse effects to biological or cultural resources.

To ensure project success, the De Los Utes Acequia Association has committed, and will be responsible for the operation and maintenance of this project after completion.

To ensure soil stability and reduce vegetation losses, disturbed areas of the ditch, resultant from construction activities, will be replanted with coyote willow whips and reseeded with a

native seed mix. Willow planting densities and seed mix specifications will be provided to the successful contractor of this project.

The planned action is being coordinated with Federal, State, and local government agencies with jurisdiction over the biological and cultural resources of the project area. Based upon these factors and others discussed in detail in the following EA, the proposed action is recommended, and will have negligible effects on the human environment. Therefore, an Environmental Impact Statement (EIS) will not be prepared for the proposed improvement work on the De Los Utes Acequia rehabilitation project.

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Date

B.A. Estok
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1.0 INTRODUCTION

1.1 BACKGROUND AND LOCATION

The U.S. Army Corps of Engineers (Corps), Albuquerque District, in cooperation with the State Engineer's Office of the State of New Mexico, the Natural Resources Conservation Service (NRCS), and the De Los Utes Acequia Association, are planning a project to improve water delivery efficiency to the De Los Utes Acequia system. The improvements described in the following Environmental Assessment (EA) will benefit the De Los Utes Acequia Association by ameliorating several factors that contribute to water loss, ditch maintenance and associated high monetary costs.

The construction work for the De Los Utes Acequia Rehabilitation Project will be conducted under section 1113 of the Water Resources Development Act of 1986 (Public Law 99-662; 33 U.S.C. 2201 et. seq.), as amended. The Act authorizes the Acequia Rehabilitation Program for the restoration and rehabilitation of irrigation ditch systems (acequias) in New Mexico. Under Section 1113 of the Act, Congress has found that New Mexico's Acequias date from the eighteenth century and, due to their significance in the settlement and development of the western United States, should be restored and preserved for their cultural and historic values to the region. Section 215 of the Flood Control Act of 1968, Public Law 90-483, as amended, provides that the secretary of the Army may enter into an agreement to credit or reimburse the costs of certain work accomplished by states or political subdivisions thereof, which later is incorporated into an authorized project. The Secretary of the Army, acting through the Chief of Engineers, and, when he/she determines it to be in the public interest, may enter into agreements providing for reimbursement to States or political subdivisions thereof for work to be performed by such non-Federal public bodies at water resources development projects authorized for construction under the Secretary of the Army and the supervision of the Chief of Engineers. The Secretary of the Army has been authorized and directed to undertake, without regard to economic analysis and costs, such measures as are necessary to protect and restore New Mexico's Acequias. The Federal financial responsibility is 75% and the non-Federal responsibility is 25% of any work carried out under section 1113

The Corps is providing funding, and is therefore the Federal action agency for this project. Project design and inspection is the responsibility of the NRCS. The State of New Mexico, through the Office of the State Engineer (OSE), is the project sponsor. The Corps has the responsibility of evaluating the potential environmental impacts of the proposed project, as presented in this Environmental Assessment (EA). Under the process for these acequia rehabilitation projects developed between the Corps, the OSE, and the NRCS under Section 1113 of the Flood Control Act of 1968 (P.L. 90-483), as amended, the De Los Utes Acequia Association will select a contractor and administer the construction contract. NRCS staff will inspect the project during construction to ensure compliance with all plans and specifications, including those written for environmental protection. The NRCS will also be responsible for certifying completion of the project according to plans and specifications before funding will be provided by the Corps to the OSE to pay for rehabilitation of the acequia system.

The De Los Utes Acequia diversion and associated ditch system, off from Los Utes Creek, is located in Sandoval County, New Mexico approximately 4 miles northeast of Cuba, NM. (see Figure 1). The acequia system completely diverts flow from Los Utes Creek and the main diversion is approximately 500 feet above the project area location (see project map, figure 1). Although the main diversion of Los Utes Creek lies on U.S. Forest Service property, the project area is located entirely on private land owned by members of the De Los Utes Acequia Association. The Los Utes Acequia has been in operation since the late 1800's and provides irrigation water to approximately 181 acres of agricultural land.

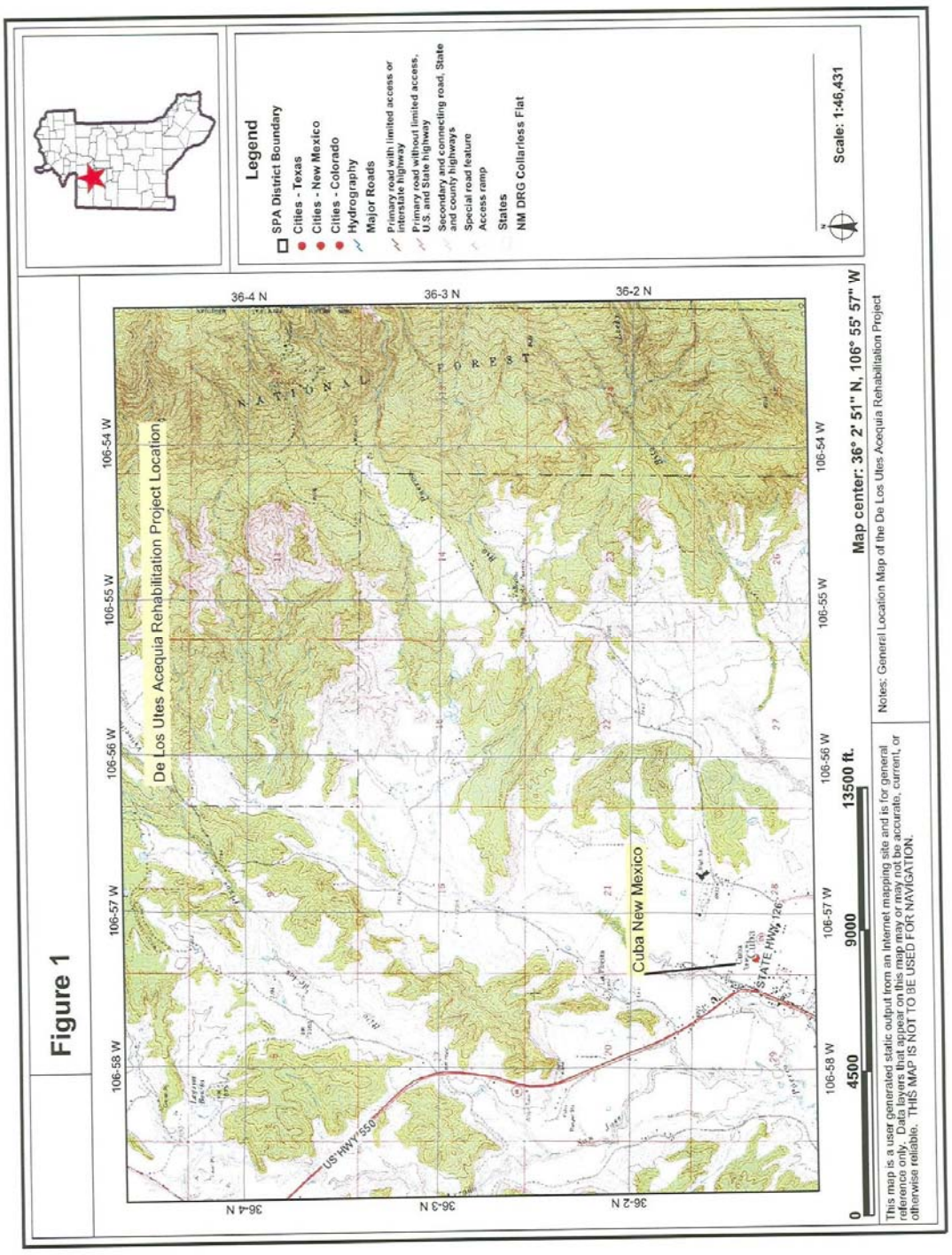
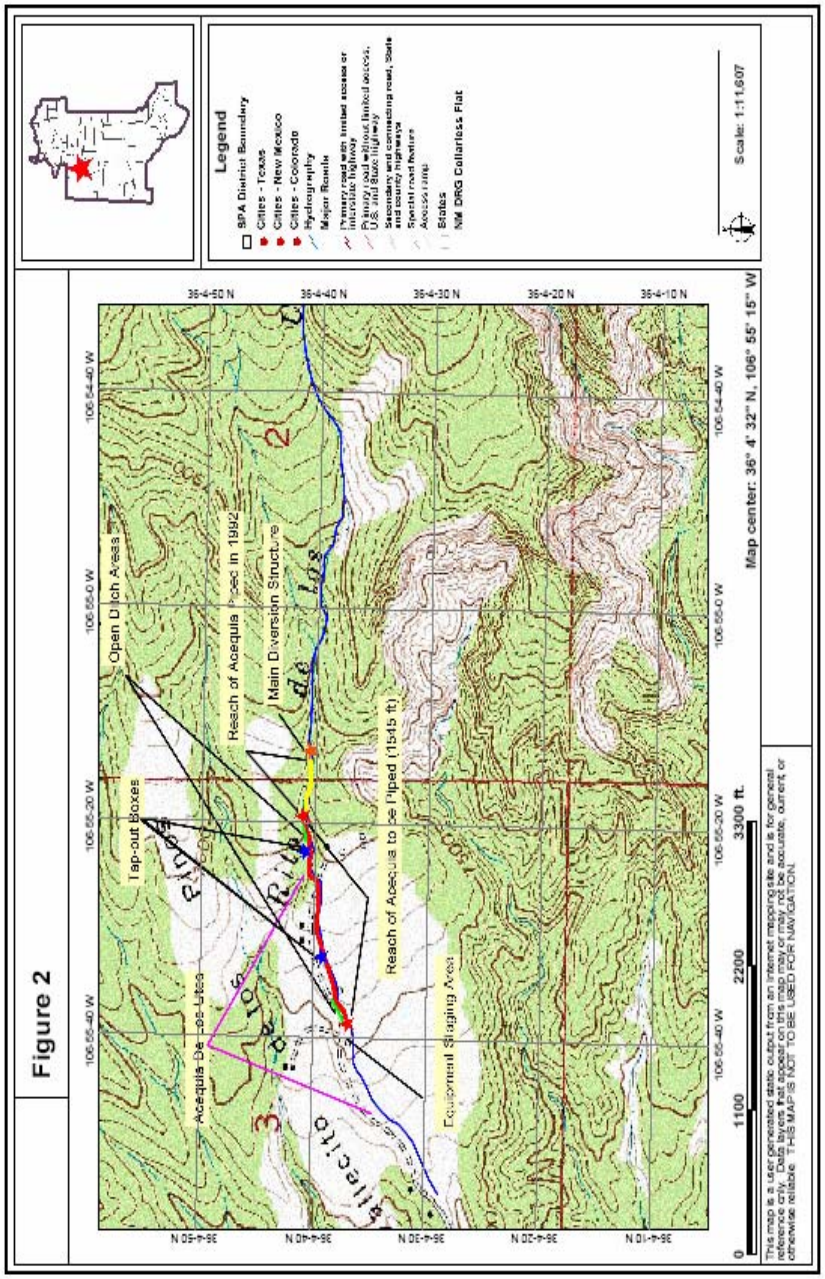


Figure 1. Map delineating the general location of the De Los Utes Acequia Rehabilitation Project in Sandoval County, New Mexico.

Figure 2. Map delineating specific locations of the De Los Utes Acequia diversion structure, associated ditch, and reach of the ditch to be piped, staging area, etc.



1.2 PURPOSE AND NEED

The De Los Utes Acequia was originally constructed in1885 and its primary uses, in order of priority are: Livestock watering, pastureland irrigation, orchard irrigation, garden irrigation, and residential yard use (Casuas 2006). Originally, the acequia system was sufficient for the needs of the original homesteaders and settlers of the area. However, since the acequia's original construction in 1885, more and more agricultural and residential development has occurred in the area, placing increased demands on the acequia and its limited water resource derived from Los Utes Creek. Because the De Los Utes Acequia is an earthen ditch (see photo 1 in Appendix C), water losses occur from evaporation, evapo-transpiration from adjacent vegetation, seepage through highly porous soils, and seepage through holes in the ditch bank caused by woody vegetation roots and rodent activity. Consequently, the ditch has become inefficient for the needs of the allocated users, highly unreliable, and costly to maintain. Currently, so much water loss is occurring that several irrigators further down the acequia system, rarely have readably-usable water (Casuas 2006). Even though plenty of water is available for allocated users at the main point of diversion on Los Utes Creek, the problems previously described preclude several users, whom have legal recorded water rights, from utilizing their allocated water. These problems have historically led to confrontational situations between users of the acequia system, and have inflicted high maintenance costs (Casuas 2006). By enclosing this portion of the ditch channel, problems associated with "not having enough water to go around" will effectively be ameliorated.

In 1992 a section of the ditch (520 feet) was piped immediately above the project area (see photo 2 in appendix C). This project helped the water shortage situation, but as development has increased, the improvements in water conveyance produced by the 1992 piping project have been overwhelmed. Once the 1545 feet of pipe is installed for the current proposed project, water losses due to evaporation and a porous ditch bank, will be significantly reduced. If precipitation is adequate, drought conditions are not severe, and levels of demand do not increase, the implementation of this project will provide the users of the De Los Utes acequia system with reliable water throughout the entire irrigation season

Within the same reach of ditch to be piped, two dilapidated lateral diversion structures-which currently consist of "make-shift" plywood/tarpaulin dams-serve two smaller lateral channels (see figure 3 in appendix C). These channels convey water north and south of the east-west trending ditch to fields and residences which lie perpendicular to the main De Los Utes Ditch. These structures require constant monitoring and periodic adjustments throughout the day (Casuas 2006). The nature of these diversion structures does not afford the association the ability to measure how much water is being diverted, and elevation discrepancies between the ditches are such that getting water to flow down the lateral ditches is problematic. Once the 12-inch diameter pipe is installed into the main ditch channel, two tap-out boxes will be installed, which will allow the users to measure how much flow is being diverted into the lateral ditches. The two tap-out boxes will avoid elevation discrepancy problems caused by the inevitable deposition of sediment at the two diversion points thus, eliminating the requirement of manually removing sediment on a daily basis.

To reduce sediment accrual/deposition in the pipeline itself, a sluice box will be installed approximately half-way down the pipeline installation area between the two tap-out boxes. The installation of this structure will effectively solve the problem that all pipeline projects face, which is the accrual of sediment in the pipe. If sediment deposition is not mitigated in some way similar to a sluice box structure, the pipe and tap-out boxes will become plugged, and the acequia association will be required to constantly monitor and maintain (clean out) the pipeline. This proves to be a very difficult and time-consuming process requiring specialized equipment and training. By installing the sluice box structure this problem will be effectively solved.

1.3 REGULATORY COMPLIANCE

This EA was prepared by the Corps, Albuquerque District, in compliance with all applicable federal statutes, regulations, and Executive Orders (EO), including the following:

American Indian Religious Freedom Act of 1978 (42 U.S.C. 1996)
Archaeological Resources Protection Act of 1979 (16 U.S.C. 470)
Clean Air Act of 1972, as amended (42 U.S.C. 7401 *et seq.*)
Clean Water Act of 1972, as amended (33 U.S.C. 1251 *et seq.*)
Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*)
Fish and Wildlife Coordination Act of 1958, as amended (16 U.S.C. 661 *et seq.*)
Floodplain Management (Executive Order 11988)
National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 *et seq.*)
U.S. Army Corps of Engineers' Procedures for Implementing NEPA (33 CFR 230)
Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500 *et seq.*)
National Historic Preservation Act of 1966, as amended (16 U.S.C. 470 *et seq.*)
Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001 *et seq.*)
Protection and Enhancement of the Cultural Environment (Executive Order 11593)
Protection of Wetlands (Executive Order 11990)
Environmental Justice (Executive Order 12898)

This EA also reflects compliance with all applicable State of New Mexico and local regulations, statutes, policies, and standards for conserving the environment, such as water and air quality, endangered plants and animals, and cultural resources.

2.0 DESCRIPTION OF ALTERNATIVES

All Federal agencies that assist in projects that utilize public funding are mandated by the National Environmental Policy Act (NEPA) to evaluate alternative courses of action so that decisions are made in the best public interest. Although Public Law 99-662 directs the Corps to restore New Mexico's acequia's without regard to economic analysis, the proposed project was reviewed to provide the most viable/economical solution to the problems associated with the De Los Utes Acequia. Discussions were held by Corps personnel and members of the acequia leadership to explore alternatives other than that of the proposed action. These discussions included reasonable alternatives that will achieve the same outcome and solution to the described problems. Attributes discussed relating to the goals and objectives of a successful project

included social, economic, and environmental effects of implementation. The resultant outcome of these discussions were that, no other alternative, other than the proposed action, will, ultimately, solve the problems associated with the acequia in a more beneficial manner. Since such a small portion of the acequia is being piped, alternatives such as lining the ditch with high density polyethylene pipe (HDPP) didn't prove to be a logical or plausible alternative as the benefits of lining the acequia didn't out-weigh the higher monetary costs. The benefit of open water for wildlife drinking, which is realized by installing HDPP in lieu of a pipe, isn't significant since such a short portion of the acequia is scheduled to be enclosed with pipe. There will also be two sections in the project where, for aesthetic purposes, the pipe will revert back to a natural looking stream channel. Wildlife may use these areas for drinking purposes if they choose not to travel the short distance to either end of the pipe for water.

Lining ditches with HDPP often provides enough leakage, via rivet holes, for some riparian vegetation to survive. In very arid regions this strategy may prove beneficial to riparian vegetation. However, for this particular situation, we determined that using HDPP instead of a pipe for reasons of conserving riparian vegetation, as previously described, was not logical, nor practical. We derived this conclusion based on the high water table in the project area and the fact that riparian vegetation within the reach of ditch piped in 1992 (500 feet) was not significantly affected. We surmise that the riparian vegetation in this reach was not affected due to the high proximity of the water table, and the fact that the acequia essentially follows the natural drainage of historical Los Utes Creek. Hydrologic processes of the watershed will inherently provide riparian dependent vegetation with ample amounts of water for survival. Therefore, based on these facts and analyses, we determined that the proposed action was the most cost-effective solution to address the problem, and that no other plan, besides the no-action alternative, will be analyzed in association with this EA.

2.1 ALTERNATIVE NO. 1: NO ACTION

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The "No Action" alternative will provide for no work or Federal assistance for design, or rehabilitation construction beyond this analysis. Therefore, no Federal funding will be spent to assist the De Los Utes Acequia Association.

2.2 ALTERNATIVE NO. 2: THE PROPOSED PLAN

The disturbances of the proposed plan will be confined to approximately 1545 feet of acequia bank-line (see Figure 2). A twelve-inch diameter PVC pipe will be installed into the existing open earthen ditch. The start of the pipeline will begin immediately at the end of the previous pipeline project completed in 1992 (see Figure 2). For aesthetic and wildlife purposes, two breaks (sections that will not be piped) in the pipeline will occur near disparate residences. One of these breaks will occur near a residence at the top of the project area and the other will occur near the lower end of the project (see Figure 2). To minimize riparian vegetation disturbance, a rubber-tired back-hoe will be utilized to install the pipe, and sensitive areas designated by Corps biologists will be avoided by the machine. These areas determined sensitive will be delineated in the plans and specifications provided to the successful contractor.

Two lateral diversion structures consisting of 2-inch diameter tap-out boxes, which laterally service smaller open-earthen ditches, will be replace the current plywood/tarpaulin dam structures. These relatively small structures, built directly inline with the 12-inch diameter PVC pipe, will consist of a fabricated metal box, and two 2-inch diameter flap and intake valves. The specific locations for these structures are illustrated in Figure 2. The first one will be approximately 300 feet down pipeline from the start of the proposed project. The second will be constructed approximately 1170 feet down pipeline from the start of the proposed project. These structures will ameliorate problems associated with the inevitable deposition of sediment at the point of diversion, and ensure flow into the smaller lateral channels when adjacent users need irrigation water.

One 12 X 12-inch square sluice box will be constructed and installed approximately half way down the proposed pipeline project. The sluice box will consist of a reinforced concrete structure, a 12-inch diameter pipe, and be reinforced with rip-rap material obtained from approved sources. The sluice box will be installed in a location easily accessed for occasional maintenance. Disturbance to the adjacent riparian vegetation will be minimized by the construction contractor by utilizing the Best Management Practices (BMPs) outlined in the projects' plans and specification contract document packet provided by the Corps and NRCS.

Existing paved and unimproved dirt roads will provide access into the construction area. A De Los Utes Acequia Association member's farm yard, immediately adjacent to the project area and consisting of approximately ½ acre, will provide a staging area for construction equipment, fuel, and personnel vehicles (Casuas 2006).

2.3 ENVIRONMENTAL PROTECTION

All Federal, State, and local environmental regulations and guidelines will be followed. Construction work will employ appropriate BMPs to minimize adverse disturbance to the environment and local ecosystem process and function. Erosion control measures will be utilized to prevent overland flow erosion. Water dispersal equipment will be used to minimize dust during construction activities. No magnesium chloride will be used on the surface of the adjacent road for dust mitigation/control as some proportion of the chemical will invariably seep into the ditch and subsequently into the aquifer, potentially affecting ground water resources.

All construction work will be confined to the acequia right-of-way, easements, and land owned by acequia members that have agreed to allow access. The project is planned for construction during the non-irrigation season of late fall/winter, 2006-2007 with an expected duration of about three months. The contract specifications for construction of this project will require avoiding damage, where practicable, to vegetation.

The construction contractor will be required to submit an Environmental Protection Plan (EPP) acknowledging and incorporating these protection measures during construction of the project. These protection measures, or Best Management Practices (BMPs), which will include specific species and seed mixes used for mitigation planting, will be included into the Plans and Specifications produced for this project. During project implementation, corps personnel will be

on site delineating sensitive areas and instructing mechanized equipment operators where and what to protect.

The Bald Eagle is known to occur in Sandoval County, primarily during the late fall and winter months. The Bald Eagle utilizes large trees for winter night roosting and perching. Bald Eagles forage primarily on fish, ducks, and carrion along rivers, ponds, and reservoirs (NMDGF, 2004). Several Bald Eagles have been documented in and around the area of Abiquiu Reservoir, approximately 33 miles to the north-east of the project area. Bald Eagles may pass though the project area and roost in the several large trees which exist. Since no resident fish population exists in Los Utes Creek (NMDGF 2006), and the small creek does not support conducive waterfowl habitat, it's unlikely that Bald Eagles will take up residency in and around the project area. The Vallecios De Los Pinos adjacent to the Los Utes Creek Drainage does support a self-reproducing population of Brook Trout. Therefore, it's possible that Bald Eagles may be encountered in the immediate area of Los Utes Creek. However, it is believed that these Bald Eagles will be in transition, and encounters will be temporary and ephemeral in nature. If a Bald Eagle is documented to be utilizing a tree within 1/4 mile of the project area for winter night roosting, construction activities will not commence until either the eagle moves off of the night roost, or one hour expires after legal sunrise, whichever comes first. Similarly, if Bald Eagles are discovered to be using the area for night roosting, construction activity will cease 1 hour before legal sunset, to afford the eagle(s) the opportunity to access the roost tree(s).

No fill material will be introduced into Los Utes Creek or other waters of the United States during or after project construction. There are no delineated wetlands associated with this project. Thus, the project complies with Executive Order 11990, Protection of Wetlands.

The staging area, which includes the stockpiling of construction materials, aggregate, vehicles, machines, fuel tanks, and pieces of equipment that are not in operation, will be above the 100-year floodplain (see Figure 2). The pipeline will be installed using a rubber-tired excavator that can effectively accomplish project objectives while inflicting the least amount of disturbance to the riparian community along the ditch banks. Equipment access will be from one of three private property gates adjacent to the ditch bank and off the gravel road which parallels the ditch (see Figure 2). To limit the possibility of transmitting deleterious aquatic pathogens, such as whirling disease, to Los Utes Creek, all equipment used will be power-washed and steam cleaned prior starting construction activity. These procedures will take place off-site in an area where water and chemicals used for cleaning will not be allowed to enter surface water or vadose zones of the aquifer. If any piece of equipment leaves the job site and returns, the said machine will undergo the same sterilization procedure described above. Equipment will be inspected daily by the contractor and Corps representative for leaks and proper mechanical function. Leaking equipment will NOT be used in or near fluvial or stagnant surface water. Fuel, oil, hydraulic fluids and other similar petroleum products will be stored above the 100-year floodplain at the staging area and must have a secondary containment system, such as a chemical corral, to prevent the escapement of free petroleum product into the surrounding area. A contingency plan will be drafted by the contractor to rectify any unexpected chemical spills, including petroleum, to prevent their seepage into the soil and groundwater aquifer resource.

Rock used for rip-rap construction will come from existing on-site material, or from a State pre-approved commercial quarry. The quarried material may not contain sulfide ores or other mine waste which could release acid or heavy metals into waters of the United States. All waste materials will be disposed of properly at pre-approved or commercial disposal areas or landfills.

The State of New Mexico, being the local sponsor, will enter into an agreement with the De Los Utes Acequia Association to provide for the irrigation system operations, maintenance, repair, replacement and rehabilitation of each completed item of work.

3.0 EXISTING ENVIRONMENT AND FORESEEABLE EFFECTS:

3.1 PHYSICAL RESOURCES

3.1.1 Climate

Northern Sandoval County, NM in the vicinity of the project area has a semi-arid and continental climate (relative humidity ranges between 20 to 60 percent), with considerable ranges in temperature and precipitation due to elevation and topography variations. Average high temperatures range between about 87 degrees Fahrenheit (^{o}F) during summer months to 42^{o}F during the winter. The average annual precipitation is about 14 inches and the average annual snowfall is approximately 35-inches/year. The majority of precipitation moisture flows inland during the winter from the Pacific Ocean. Although much of this moisture is removed via orographic vectors, precipitation is greater here than in the central valley and eastern portions of New Mexico. Summer rains, often significant, are derived from moisture flowing north from the Gulf of Mexico and are released in thunder storm activity usually during the months of July and August. Convective currents caused by surface heating and augmented by orographic uplifting as the air moves upslope over mountainous terrain cause brief, but sometimes heavy precipitation events. (WRCC, 2005). The proposed project will have no effect on climate at any scale.

3.1.2 Physiography, Geology and Soils

The project area is located in the northern mountainous region of Sandoval County, New Mexico. Elevation of the project area is approximately 7000 feet above see level with peaks to the east escalating to over 11,000 feet (Redondo Peak). There are twenty different soil classifications delineated within Sandoval Co., New Mexico, which are geographically associated and comprise recognizable landscapes. Specifically, soils in this region of Sandoval Co., and within the in the vicinity of the project area consist primarily of the Christianburg-Navajo series (Maker et al. 1971). This association, which is widely distributed throughout the western part of Sandoval Co., encompasses approximately 131,185 acres. It occurs principally in valley bottoms and on flood plains and terraces along the larger intermittent drainages. The soils of the unit, which are nearly level and gently sloping, are forming in fine-textured alluvium weathered principally from shale. Although occurring on gentle slopes, they are highly susceptible to water erosion, particularly gully erosion. Deep, vertically walled gullies are

numerous, and parts of this association are highly dissected by gullies. The majority of soils are slightly to moderately saline, and a small acreage in the association contains a high concentration of soluble salts. In addition to the salinity problems, some of the Navajo soils are also alkali-affected.

The areas not severely gullied support a fair cover of native vegetation including western wheatgrass, mat muhly, red muly, alkali sacaton, salt grass, greasewood, chamisa, shadscale, and traces of big sagebrush and rabbit-brush. The salt-grass and greasewood are more common in the alkali areas.

Christianburg soils, the most extensive in the association are forming in fine-textured, calcareous alluvium derived principally from olive and gray colored shales. These soils have a grayish-brown to light brownish –calcareous surface layer 6 to 10 inches thick. This is underlain to a depth of five feet or more by a grayish-brown clay or silty clay. Salt crystals and a few streaks and specks of lime often occur in the sub-surface layers.

The Navajo soils are also forming in fine-textured calcareous alluvium. They typically have a thin surface layer of reddish-brown, calcareous clay, clay-loam, or sandy clay loam. The underlying material, to a depth of five feet or more, usually consists of a heavy dense clay that often contains some salt crystals. Vertical cracks form as the clay dries and shrinks. Many of the Navaho soils are also saline and alkali-affected (Hilley et al. 1981).

In addition to the two principal soils, miscellaneous land types and soils of minor extent comprise approximately 35 percent of the association. The land types include gullied land, alluvial land and alkali alluvial land. Alluvial land commonly occurs contiguous to the intermittent drainages. These soils, which are highly stratified and variable in texture, are dominated by sandy loams, and loams. Alkali alluvial land, although similar to alluvial land, differs in that the soils have a high content of exchangeable sodium (NaCl). Gullied land includes those areas characterized by a network of deep gullies or arroyos. The soils of lesser extent include those of the Turley, Ravola, and Prewitt series. The Turley and Prewitt soils are deep and moderately fine-textured. The Ravola soils are deep and medium textured (Maker et al 1971).

BMPs will be implemented to protect soils from water and wind erosion. These may include, but are not limited to: seeded or planted native vegetation that is associated with the riparian habitat found in the project area; erosion netting along the high aspect areas of excavation; straw waddles and bales along potentially high erosive areas. Prescriptive BMPs as well as specific species to be planted/seeded will be determined by site specific characteristics, as well as the potential ability to bind the specific soil types described above and will be included in the plans and specifications for this project. The project will be beneficial to soil stability by reducing the need for constant ditch maintenance, which also provides constant disturbance to soils and contributes to erosion instability. Only short term impacts to soils will occur during construction from mechanized equipment.

3.1.3 Water Resources

Los Utes Creek is a small, often intermittent, first order stream, which originates in the mountainous region northeast of Cuba, New Mexico in the San Pedro Parks Wilderness Area of the Santa Fe National Forest. Elevations of its headwater springs originate around 11,000 feet. Los Utes creek flows southwest for a distance of approximately 1 mile (6857 feet) before becoming entirely diverted by the De Los Utes Acequia system (see figure 2). Water quality in Utes Creek, before the diversion, is typical of a mid-elevation mountain stream, with cool temperatures and low turbidity (Thompson 2006). Los Utes Creek, above the diversion structure, will not be affected by the proposed project. A prior piping project completed in 1992 completely confined the creek to a 12-inch pipe, which extends down drainage to the start of the proposed project area (see photo 5 in appendix C). During high flow events, and years with an extreme hydrograph, Los Utes Creek will have confluessed with the Vallecito De Los Pinos lower in the watershed. However, since the development of irrigation infrastructure dating back to the 19th century, and over-allocation of the streams water resources, contemporary flows from Los Utes Creek do not make its historical confluence with the Vallecito De Los Pinos.

Since Los Utes Creek is not an intrastate stream, the project will not be subject to the State of New Mexico's Standards for Interstate and Intrastate Streams that include isolated wetlands, ephemeral and perennial watercourses. These standards are as follows:

1) In an single sample:

- Dissolved oxygen (DO) shall not be less than 6.0 mg/L
- pH shall be within the range of 6.6-8.8
- Temperature shall not exceed 77º F

2) The monthly geometric mean of fecal coliform bacteria shall not exceed 1000/100 ml; no single sample shall exceed 2000/100ml

3) At all flows above 10 cubic feet per second (cfs):

- TDS (total dissolved solids) shall not exceed 250mg/L
- Sulfate shall not exceed 25 mg/L
- Chloride shall not exceed 5 mg/L

The following general water quality standards **do** apply to the implementation of this project:

1.) Stream bottom deposits: The stream shall be free of water contaminants from other than natural causes that will settle and adversely inhibit the growth of normal flora and fauna or significantly alter the physical or chemical properties of benthic habitats.

2.) Floating solids, oil and grease: Receiving water shall be free of objectionable oils, scum, grease and other floating materials originating or being derived from other than natural sources.

3.) Toxic substances: Surface waters of the State shall be free of toxic substances attributable to point or non-point source discharge in amounts, concentrations or combinations which are toxic

to fish or to other aquatic organisms; to wildlife using aquatic environments for habitation or aquatic organisms for food; or to livestock or other animals drinking such water.

4.) Turbidity: Turbidity attributable to other than natural causes shall not reduce light transmission to the point that desirable aquatic life presently common in New Mexico waters is inhibited or that will cause substantial visible contrast with the natural appearance of the water.

The NMWQCC also lists numeric standards for ammonia and various metals that, because of designated uses of this stream segment, cannot be exceeded. Because many of these standards are dependent on water "hardness", or temperature at the sample site, they are not listed in this document. The proposed project will not have any affect on water quality due to the fact that Los Utes Creek is entirely diverted into the acequia system and does not contribute to the flow of any other body of water. If flow from De Los Utes Acequia did in fact make hydraulic contributions to another watershed, water quality may increase in that watershed. However, this is not the case in this particular situation.

Section 404 of the Clean Water Act of 1972 (CWA; 33 U.S.C. 1251 et seq.), as amended, provides for the protection of waters of the United States through regulation of the discharge of dredged or fill material. The Corps' Regulatory Program (33 CFR Parts 320-330) requires that a Section 404 determination be conducted for all proposed construction that may affect waters of the United States. Washes and arroyos along the proposed right-of-way and construction area adjacent to the project, are considered "waters of the United States" as per the terminology and definitions used in CWA. However, the Act provides exemptions for certain discharges associated with the construction and maintenance of irrigation ditches (33 CFR 323.4, Exemption No. 3). Discharges associated with siphons, pumps, head gates, wing walls, weirs, diversion structures, and other facilities functionally related to irrigation ditches are also included in this exemption.

No delineated wetlands are present as a result of the ditch. This project will be in compliance with Executive Order 11990, Protection of Wetlands.

Section 401 of the CWA, as amended, requires that a Department of the Army (DA) permitee under section 404 of the CWA also obtain water quality certification for the proposed action prior to initiating the proposed construction. For projects located in New Mexico, the New Mexico Environment Department administers the water quality certification process for U.S. EPA. Since a DA permit under Section 404 is not required for this project, Section 401 state water quality certification is also not required.

Executive Order 11988 (Floodplain Management) provides Federal guidance for activities within the floodplains of inland and coastal waters. The proposed activities will not adversely affect stream hydrology, existing flow patterns, or cause increases in the extent or duration of flood events. No additional development of the floodplain is likely to result from this project. Therefore, the proposed action complies with executive 11988.

Section 402 of the CWA, as amended, regulates point source discharges of pollutants into waters of the United States and specifies that storm-water discharges associated with construction activity be conducted under National Pollutant Discharge Elimination System guidance (NPDES). Storm-water discharge associated with "construction activity" includes discharges from construction activities (clearing, grading, and excavation) that result in disturbance to one or more acres of land. Prior to the start of construction, the successful contractor will file a Notice of Intent with United States Environmental Protection Agency, Region 6.

The New Mexico Water Quality Control Commission has defined water quality standards for rivers and streams into which unconsumed water in the acequia eventually flows. Due the intermittent nature of Los Utes Creek, and the fact that unconsumed water does not return back into Los Utes Creek or Vallecito De Los Pinos, these water quality standards do not apply to this particular rehabilitation project.

The no action alternative will not significantly affect water resources. It is anticipated that the project will not affect existing sediment and pollutant transport or water quality in the system. Surface and subsurface flow patterns will not be substantially affected as a result of piping the acequia. Piping the earthen ditch will provide a benefit by improving hydraulic efficiency and water quality. Acquisition of sediment by the ditch will be reduced by piping the acequia. Since all construction work will be accomplished during the non-irrigation season, when the ditch is dry, there will be no effect on acequia water quality during construction from ground disturbance.

Water losses occur in the existing earthen ditch from evaporation, seepage through porous soils, and bank porosity derived from root and rodent activity. Water resources to the Los Utes Acequia Association will improve by decreasing water leakage and improving water conveyance downstream to irrigators further down the system. The project will not change/affect water rights, or the amount of flows diverted from Los Utes Creek since at the present time, the entire creek is diverted for irrigation purposes. It is expected that the amount of usable water originally diverted from the main Los Utes Creek diversion structure will increase for use by the acequia association. However, the specific amount of increased, usable water has not been determined or quantified.

3.2 BIOLOGICAL RESOURCES

3.2.1 Vegetation

The project area is located down slope of the San Pedro Parks Wilderness Area of the Santa Fe National Forest (U.S. Department of Agriculture). Vegetation observed within and adjacent to the acequia ditch during a reconnaissance field survey on August 22nd, 2006, included gray oak (*Quercus grisea*), pinyon pine (*Pinus edulis*), one-seed juniper (*Juniperus monosperma*), fremont cottonwood (*Populus fremontii*), western box-elder (*Acer negundo*), Siberian elm (*Ulmus pumila*) netleaf hackberry (*Celtis Reticulata*), four-wing salt brush (*Atriplex canescens*) chokecherry trees (*Prunus virginiana*), coyote willow (*Salix exigua*), rubber rabbit

brush (*Chrysothamnus nauseosus*), and wild rose (*Rosa woodsii*). Herbaceous species included various grasses (including *Agrostis stolonifera*, *Bromus tectorum*), Virginia creeper (*Parthenocissus quinquefolia*), mullein (*Verbascum thapsus*), and thistle (*Cirsium* sp.) (see project photos in appendix C). The project area is well-vegetated with riparian associated/dependent species and, in some areas dense tree growth will inhibit access by heavy equipment.

Riparian and upland habitats along the acequia right-of-way and Los Utes Creek support a diverse variety of mammals, birds, amphibians and reptiles. Trees along the project corridor provide roosting and nesting areas for migrating and breeding birds. However, the project area is not on a major bird migration route.

Varying densities of riparian vegetation occurs along the ditch banks of the De Los Utes Acequia System (see project photos in appendix C.) Negligible hydraulic impact to the riparian community is expected from the proposed piping project. The associated water table is relatively high in elevation as the acequia essentially follows the historical Los Utes Creek stream channel. The piping project completed in 1992 had minimal effects to the adjacent riparian community and we expect the same minimal effects to occur as a result of this project. Some disturbance of the riparian community along the reach to be piped is inevitable, and will be expected from mechanized construction equipment (rubber-tired back-hoe). However, the riparian vegetation species of concern are very resilient to disturbance and some, such as the coyote willow (*Salix exigua*), depend on it. The expected disturbance could result in a more healthy, and seral stage diverse riparian community (Meehan et al. 1991), thus providing complex habitats for riparian dependent species of birds, mammals, amphibians, reptiles, and invertebrates. Although it may take a few years to recover, no net loss of riparian vegetation will be experienced from the implementation of the proposed project. There are very few cottonwood trees that line the ditch banks of the De Los Utes Acequia. However, other large woody species including box-elder (*Acer negundo*), and Siberian elm (*Ulmus pumila*) do occur in high densities. These trees provide perching and nesting areas for small species of birds and possibly resting/roosting areas for bald eagles.

The construction contractor will be required to submit an Environmental Protection Plan acknowledging and incorporating protection measures during construction of the project. These protection measures, or BMPs will be included into the Plans and Specifications produced for this project. Areas to be reseeded or replanted will include those disturbed by construction activity along the vegetated banks of De Los Utes Acequia. Specific species and seed mixes used for mitigation planting will be delineated within the Plans and Specifications supplied to the contractor. During project implementation, Corps personnel will be on site outlining sensitive areas and instructing construction machinery operators what areas need protection.

This project is planned for construction during the non-irrigation season of 2006/2007 with an expected duration of approximately three months. All construction work will be confined to the acequia right-of-way and land owned by De Los Utes acequia association members that have agreed to allow access. The contract specifications for construction of this project will require avoiding damage where practicable to vegetation, especially areas where

there is no access road and/or large trees inhibit access. To the extent practicable, mature trees that are inadvertently destroyed will be replaced with the same species.

The preferred alternative may temporarily disturb wildlife due to noise and increased human presence during construction. However, there will be no long-term/permanent effects to wildlife resources by implementing the preferred alternative.

3.2.2 Special Status Wildlife Species

While all Federal agencies and numerous other State agencies have responsibility for the protection and conservation of animal and plant species in the project area, there are three agencies that have this task as their primary responsibility. The U.S. Fish and Wildlife Service (USFWS), under authority of the Endangered Species Act (ESA) of 1973 (as amended), has responsibility for Federally listed species. The New Mexico Department of Game and Fish (NMDGF), under the authority of the Wildlife Conservation Act of 1974, and the New Mexico Energy, Mineral and Natural Resources Department, under authority of the New Mexico Endangered Plant Species Act and Rule NONMFRCD 91-1, have responsibility for wildlife and plant species, respectively, within the state. Each agency maintains a list of animal and/or plant species that have been classified or are candidates for classification as endangered or threatened based on present status and potential threat to future persistence. Of these species, those with the potential to occur in Sandoval County, and near the project area, are listed in Table 1.

Table 1. Federal and State Listed Endangered and Threatened Species known to occur in Sandoval County, New Mexico.

Common Name	Scientific Name	Status
Bat, Spotted	*Euderma maculatum*	State NM: Threatened
Black-Hawk, Common	*Buteogallus anthracinus anthracinus (*NM*)*	State NM: Threatened
Cormorant, Neotropic	*Phalacrocorax brasilianus*	State NM: Threatened
Cuckoo, Yellow-billed	*Coccyzus americanus occidenta*	Federal: Candidate
Eagle, Bald	*Haliaeetus leucocephalus alascanus (*NM*)*	Federal: Threatened State NM: Threatened
Falcon, Peregrine	*Falco peregrinus anatum*	State NM: Threatened

Ferret, Black-footed	*Mustela nigripes*	Federal: Endangered
Flycatcher, Willow, SW.	*Empidonax traillii extimus*	Federal: Critical Hab. Designated (NM) Federal: Endangered State NM: Endangered
Hummingbird, Broad-billed	*Cynanthus latirostris magicus (*NM*)*	State NM: Threatened
Hummingbird, Costa's	*Calypte costae*	State NM: Threatened
Marshsnail, Wrinkled	*Stagnicola caperata*	State NM: Endangered
Marten, American	*Martes americana origenes (*NM*)*	State NM: Threatened
Mouse, Jumping, Meadow	*Zapus hudsonius luteus*	State NM: Threatened
Owl, Burrowing	*Athene cunicularia hypugaea (*NM,AZ*)*	Federal: FWS Species of Concern
Owl, Spotted, Mexican	*Strix occidentalis lucida (*NM,AZ*)*	Federal: Critical Hab. Designated (NM) Federal: Threatened
Pelican, Brown	*Pelecanus occidentalis carolinensis (*NM*)*	State NM: Endangered
Salamander, Jemez Mtns.	*Plethodon neomexicanus*	Federal: FWS Species of Concern State NM: Endangered
Sparrow, Baird's	*Ammodramus bairdii*	Federal: FWS Species of Concern State NM: Threatened
Vireo, Gray	*Vireo vicinior*	State NM: Threatened

On August 22, 2006 Corps personnel conducted a reconnaissance survey of the proposed construction area(s). No Federal or State special status plant or animal species, or evidence thereof, were observed in and around the proposed construction area.

Due to the lack of potential suitable or preferred habitat, and/or seasonality for the species listed in table 1, they most likely will not occur in the vicinity of the De Los Utes Acequia Rehabilitation Project. Also, the proposed construction for this small rehabilitation project is limited in area, scope, and duration. Therefore, due to these limitations, there will be no direct or indirect effects to the species listed in table 1 of this document.

Ichthyofauna

A formal presence/absence fish species survey of Los Utes Creek has not been completed by the New Mexico Department of Game and Fish (NMGFD, 2006). On August 22, 2006 a qualitative observational survey was conducted by a Corps fishery biologist. The results of this survey indicated that there are no fish present in Los Utes Creek (Thompson 2006.) Los Utes Creek has a very small drainage area, and due to the stream's intermittent nature, conducive fish habitats are not available. The adjacent drainage, Vallecitos De Los Pinos, does support a self sustaining population of brook trout *Slavelinus fontinalis* (Castel, 2006.) Prior to water development, Los Utes Creek and Vallecito De Los Pinos were hydrologically connected, and fish from Vallecito De Los Pinos could have seasonally used Los Utes Creek for certain aspects of life history such as spawing or winter habitat. However, since the historical confluence of Vallecito De Los Pinos and Los Utes Creek no longer exists, it is unlikely that even ephemeral populations of fish inhabit Los Utes Creek.

Avifauna

The following is a list of special status bird species from table 1, which have the potential to occur in Sandoval County and could be present near and around the proposed project area. None of these species were observed during the reconnaissance survey on August 22, 2006.

Burrowing Owl (*Athene cunicularia hypugaea*): The Burrowing Owl lives in open to dense stands of shrubs and low trees, including big sagebrush, saltbush, greasewood, or creosote bush. No Burrowing Owls or their burrows were observed during the biological review on August 22, 2006. Burrowing Owls normally occupy prairie dog colonies of which none were observed in the vicinity of the project area. There will be no direct or indirect effects to burrowing owls due to the implementation of this project.

Brown Pelican (*Pelecanus occidentalis*): The Brown Pelican is usually found in marine habitats in warmer waters in North America. The species feeds exclusively on fish, which it usually obtains by diving head-first from heights of up to 20 m (NMDGF, 2004). By contrast, the American White Pelican normally feeds from the surface, including in cooperative flocks. The latter species often soars at great heights in flocks, whereas brown pelicans more often fly in linear, follow-the-leader formations. Given the rarity of the latter species in New Mexico, next to nothing is known about its habits in the state. The reliable records are all of solitary birds,

generally in sub-adult plumages and near water. One will presume that most occurrences in the state will be of storm-driven birds that moved inland under duress. Due to the transitory nature of the Brown Pelican and its rarity within the state of New Mexico the likelihood of an individual utilizing aquatic habitats within the project area are rare. Therefore there will be no effect on this species by the proposed action.

Bald Eagle (*Haliaeetus leucocephalus*): The Bald Eagle is normally found near major waterways and larger lakes where adequate food supplies may be found. The Bald Eagle is known to occur in Sandoval County, primarily during the late fall and winter months. The Bald Eagle utilizes large trees for winter night roosting and perching and forages primarily for fish, ducks, and carrion along the river and at local reservoirs (NMDGF, 2004). The Bald Eagle may fly over the construction area and winter roost in trees near the project area. Due to the ease of mobility for the Bald Eagle, the seasonal residency, and the limited disturbance of the proposed action, the Corps determines that the proposed project "may affect, but not likely to adversely affect" the bald eagle. All construction contracts will include the following protocol: If a Bald Eagle is found to be using any tree within 1/4 mile of the project area for winter night roosting, construction activity will not commence until either the bird moves off of the night roost or one hour expires after legal sunrise, whichever comes first. Similarly, if Bald Eagles are discovered to be using the area for night roosting, construction activity will cease 1 hour before legal sunset, to afford the bird(s) the opportunity to access the roost tree(s).

Yellow-Billed Cuckoo (*Coccyzus americanus*): The Yellow-Billed Cuckoo is considered rare in New Mexico and is associated primarily with lowland deciduous woodlands, riparian woodlands, willow and alder thickets, cottonwood-dominated habitat, second-growth woods, deserted farmlands, and orchards. It feed on insects, primarily caterpillars (NMDGF, 2004). Due to the ease of mobility for the Cuckoo, the seasonal residency, and the limited disturbance of the proposed action, there will be no effect to the Yellow-Billed Cuckoo.

Southwestern Willow Flycatcher (*Empidonax traillii extimus*): The Southwestern Willow flycatcher is a neo-tropical migrant that spends only three to four months (approx. May through August) on their breeding grounds in the conterminous United States. The flycatcher usually breeds in patchy to dense riparian habitats along streams or other wetlands, near or adjacent to surface water or underlain by saturated soil. Contemporary surveys in New Mexico documented that Flycatchers persist in the Rio Grande, Chama, Zuni, San Francisco, and Gila watersheds (USFWS, 2002). Due to the ease of mobility for the Flycatcher, the seasonal residency, lack of suitable habitat within the project area, and the limited disturbance of the proposed action, there will be no effect to the Southwestern Willow Flycatcher.

Common Black Hawk (*Buteogallus anthracinus anthracinus*): In the neo-tropics, this species occupies a wide array of habitats, including in areas where it subsists largely on land crabs. In New Mexico Common Black Hawks occur in desert woodlands, especially of cottonwoods, that occur where desert streams provide sufficient moisture for a narrow band of trees and shrubs along the margins. Breeding Common Black-Hawks require mature, well-developed riparian forest stands (e.g., cottonwood bosques) that are located near permanent streams where principal prey species are available (NMDGF, 2004). Although there are a few cottonwood trees located within the project area, no hawk nests were observed during the biological review for this

project. Due to the ease of mobility for Common Black Hawks, migratory life-history, minimal suitable habitat within the project area, and the limited disturbance of the proposed action, there will be no effect to this species.

American Peregrine Falcon (*Falco peregrinus anatum*): In New Mexico, the breeding territories of Peregrine Falcons center on cliffs that are in wooded/forested habitats, with large "gulfs" of air nearby in which these predators can forage (Hubbard 1985). The nest sites are typically ledges or potholes, with the 3-4 eggs being laid directly on the bare substrate. The eggs are creamy white, with moderate to very heavy reddish and chestnut speckles and splotches. Incubating birds are generally silent and unobtrusive, and they are easily overlooked. Peregrins breed in open habitats from tundra, savanna, and seacoasts to high mountains, also open forests and tall buildings. Peregrin falcons have been officially down-listed by the US Fish and Wildlife Service, but in New Mexico are still considered threatened. There will be no effect to this species due to the lack of suitable hunting and nesting habitat in the project area.

Broad-Billed Hummingbird (*Cynanthus latirostris magicus*): The array of habitats used by this hummingbird in Mexico is quite varied, but in the United States the species is found primarily in riparian woodlands at low to moderate elevations. This species is often pugnacious and feeds on both nectar and a variety of small arthropods. This species is normally associated with low-elevation desert habitats (NMDGF, 2004). The Broad-Billed hummingbird may frequent the project area during construction activities, but there will be no effect on individuals or populations due their ease of mobility and the minimal disturbance characteristics of this project. Also, the elevation of the project area and surrounding habitat types do not lend themselves to this species preferred habitat. No hummingbirds were observed during the biological review on August 22, 2006.

Costa's Hummingbird (*Calypte costae*): In Mexico and portions of southern California and Arizona, Costa's Hummingbird occurs in a variety of habitats during the non-breeding season. However, it usually breeds in arid habitats, plus occasionally in adjacent agricultural areas (Baltosser and Hubbard 1985). No hummingbirds were observed during the biological review on August 22, 2006. Due to the temporal nature of project implementation it is unlikely that a costa's hummingbird will be nesting within the project area. There will be no effect to this species due to project implementation.

Mexican Spotted Owl (*Strix occidentalis lucida*): Habitat characteristics highly sought by Mexican Spotted Owls include high canopy closure, high stand density, a multi-layered canopy, uneven-aged stands, numerous snags, and downed woody matter. These are best expressed in old-growth mixed-conifer forests (usually more than 200 years old). These characteristics may also develop in younger stands that are unmanaged or minimally managed, especially when the stands contain remnant large trees or patches of large trees from earlier stands. Mexican Spotted Owls nesting occurs most frequently in the mixed-conifer community type, followed by the pine-oak community type. No nests were found in the ponderosa pine community type in this study although it makes up 40% of Forest Service estimated suitable habitat in Arizona and New Mexico. The proposed action will have no effect on Mexican Spotted Owls due to project elevation and lack of preferred and suitable habitat types. Although Designated Critical Habitat

for Mexican Spotted Owls exists in Sandoval County, none exists in local proximity to the project area.

Grey Viero (*Vireo vicinior*): The breeding habitat of this species is generally open woodlands/shrublands featuring evergreen trees and shrubs of various kinds. Junipers are the dominant element in most areas of occurrence in New Mexico, although oaks are also frequent in the southern part of the range. This Vireo, like other members of this family, is an insectivore, and it occurs in New Mexico only in the warmer months (April-September). It is somewhat more active than other Vireos, moving fairly rapidly among branches as it gleans prey. The song is the best means of locating the gray vireo, although the species seems to be a less prolific singer than others of its family. The song consists of rather clear to somewhat blurry phrases, separated by short pauses. Due to the transitory nature of the Grey Vireo in New Mexico there will be no effect to this species by the implementation of the proposed action. Construction activities will occur during the late fall to winter months when the Grey Vireo does not reside within the state.

Baird's Sparrow (*Ammodramus bairdii*): Baird's Sparrow's is usually flushed before it is seen, only to fly a short distance and drop down to disappear again. In New Mexico it has been found in a variety of habitats, ranging from desert grasslands in the south to prairies in the northeast and mountain meadows in the San Juan and Sangre de Cristo mountains--including to an elevation of 3600 m. Migrants arrive as early as the first week of August; this fact and the occurrence of birds in juvenal plumage led to the unfounded suspicion that the bird might breed in the state. By November, most appear to have moved farther south, and in spring the species has been seldom detected in the state. Baird's Sparrow apparently does not sing in New Mexico, although the short, low-pitched character of the song could cause it to go undetected. The call note is a high chip, perhaps not distinguishable from those of other grassland sparrows. The project area is not described as a short-grass prairie and it is highly unlikely that a Baird's Sparrow will be encountered during project implementation. Due to the short duration and low impacts of construction activities the proposed action will have no effect on this species.

Cormorant, Neotropic (*Phalacrocorax brasilianu)*: In New Mexico, Cormorants are generally found on larger bodies of water such as reservoirs, where they prey on fish--probably mainly "rough" species in New Mexico (Hubbard 1978, etc.). They swim and dive readily, drying their wings in spread-eagle posture outside the water. Cormorants fly in level flight, forming V's or lines when in flocks. The expanse of open water is probably a major stimulus in attracting these birds. Since no large bodies of water are adjacent to the project area it is unlikely that a cormorant will be present, even in transition to a large body of water. There will be no effect on the cormorant by implementing the proposed project.

Mammals

The following is a list of special status mammal species from table 1, which have the potential to occur in Sandoval County and could be present near and around the proposed project area. None of these species were observed during the reconnaissance survey on August 22, 2006.

Meadow Jumping Mouse *(Zapus hudsonius luteus)*: The species in New Mexico characteristically occur in mesic habitats dominated by rank, herbaceous vegetation. In both the

Jemez Mountains and the Rio Grande Valley, Morrison (1985, 1988) found that preferred habitat for the meadow jumping mouse included permanent streams, moderate to high soil moisture, and dense, diverse streamside vegetation consisting of grasses, sedges, and forbs. Such habitats were characterized by wet meadows in the Jemez Mountains, while they included the edges of permanent ditches and cattail stands in the Rio Grande Valley (NMDGF, 2006.) Due to the intermittent nature of the De Los Utes Acequia it is unlikely that suitable habitat for this species is present. There will be no effect on this species due to the rehabilitation of the De Los Utes Acequia.

Least Shrew (*Cryptotis parva*): The least shrew is confined to mesic habitats in New Mexico, and throughout its range it frequents grassy or marshy situations as well (Eley and Hubbard 1985). In the western edges of its distribution, least shrews have been found in a variety of habitats. They have been found in riparian woodlands in southeast Colorado (Choate and Reed 1988). In northeast Colorado, they have been found in shortgrass prairie, old field communities and marshy areas (Fitzgerald et al. 1994). In New Mexico, least shrews have been found in heavily grassed areas, and mesic grassy areas with willow trees and cattails (NMDGF, 2004). Construction activities will be localized to areas directly adjacent to the ditch. No excavation will take place down in the agricultural fields where a least shrew will most likely be encountered. Therefore the proposed action will have no effect on populations or individuals of least shrews.

Spotted Bat (*Euderma maculatum)*: Although the habitat where many spotted bats have been taken in North America has been recorded, it still is unclear what the preferred habitat of the species is. Research has suggested that spotted bats are residents of the ponderosa pine area in June and July and wander to lower elevations in late summer and autumn. In Arizona they were at these lower vegetation communities in April (near Yuma) and in December-January (near St. George). The animal has been captured in ponderosa pine of montane forests, pinon-juniper woodlands, and open semidesert shrublands. Rocky cliffs are necessary to provide suitable cracks and crevices for roosting, as is access to water. The animals show apparent seasonal change in habitat, occupying ponderosa pine woodlands in the reproductive season and lower elevations at other times of the year. The area of disturbance associated with this project does not contain any habitat where spotted bats have been captured. Therefore this project will have no effect on the spotted bat.

American Marten (*Martes americana origenes*): Martens prefer late successional stands of mesic, conifer-dominated forest. Pine martens inhabit forests of spruce, fir, Douglas-fir and associated trees in northern New Mexico (Bailey 1932; Findley et al. 1975). Optimum habitat appears to be mature old-growth spruce-fir communities with more than 30 percent canopy cover, well-established under-story of fallen logs and stumps, and lush shrub and forb vegetation supporting microtine and sciurid prey (Clark et al. 1987). Martens occur in spruce-fir forests and marginal Alpine habitat in the San Juan and Sangre de Cristo mountains, where V. Bailey (1932) reported specimens and sight records (NMDGF, 2004). The elevation of the proposed action project site is not conducive to produce the habitat types preferred by the marten. The proposed action will have no effect on marten populations or individuals.

Black Footed Ferret (*Mustela nigripes*): Black-footed Ferrets occur in Mixed Shrub habitat types. Closely associated with the prairie dog, whose burrows provide excellent retreats for ferrets. The dependency of the black-footed ferret on this food item is so great that reduction in numbers of ferrets is directly related to reduction in prairie dogs. No prairie dog colonies or individuals were documented during the biological review on May 30th, 2006. Furthermore the New Mexico Dept. of Game and Fish report the species to be extirpated from the state. Therefore the proposed action will have no effect on black footed ferret populations or individuals.

Amphibians

The following is a list of special status amphibian species from table 1, which have the potential to occur in Sandoval County and could be present near and around the proposed project area. None of these species were observed during the reconnaissance survey on August 22, 2006.

Jemez Mountains Salamander (*Plethodon neomexicanus*): The Jemez Mountains salamander typically occurs on shady, wooded sites at elevations of 2190-2800 m. Such areas are characterized by conifers, including white fir, Engelmann spruce, blue spruce, and Douglas fir. Deciduous trees that are present include quaking aspen and Rocky Mountain maple. In these habitats, salamanders spend much of the time below the surface, including under rocks and in fallen logs. Old, stabilized talus slopes are important types of cover for this species, especially those with a good covering of damp soil and plant debris (NMDGF, 2004). The Jemez Mountain salamander will not inhabit the project area due to the lack of elevational requirements for habitat. Therefore these will be no effect on populations or individuals of this species by the implementation of the proposed action.

Aquatic Macro-Invertebrates

The following is a list of special status aquatic macro-invertebrate species from table 1, which have the potential to occur in Sandoval County and could be present near and around the proposed project area. None of these species were observed during the reconnaissance survey on August 22, 2006.

Wrinkled Marshsnail (*Stagnicola caperata*): The wrinkled marsh snail occurs in such habitats as vegetated ditches, marshes, streams, and ponds, typically that are seasonally dry. Such a site is occupied by the New Mexico population in the Jemez Mountains, where the habitat is a shallow pond at 2600 m elevation. The species also occurs in areas of perennial water, including the former population at Bitter Lake National Wildlife Refuge. The wrinkled marshsnail has not been recorded in the Rio Puerco drainage. Therefore it is highly unlikely that this species occurs in perennial portions of Los Utes Creek. There will be no effect to this species due to the implementation of the proposed project.

Summary:

Foreseeable effects of the proposed action and the no action alternative on federally listed species of the proposed construction areas will be minor, of short duration, and temporary in nature, and will result in negligible disturbance. The Corps determines that the preferred alternative will have "no effect" on all Federally listed fish, plant, and macro-invertebrate species receiving protection under the Endangered Species Act of 1973. As a result formal or informal consultation with the U.S. Fish and Wildlife Service, as required under section 7 of the Endangered Species Act of 1973, was not initiated.

Critical Habitat

Critical habitat refers to specific geographic areas that are essential for the conservation of a threatened or endangered species and that may require special management considerations. A critical habitat designation does not set up a preserve or refuge and only applies to situations where Federal funding, authorization or permits are involved. Since no private, state or tribal lands are being designated, the designation will only affect activities on Federal lands.

Designated critical habitat for the Mexican spotted owl has been finalized by the U.S. Fish and Wildlife Service. Mexican spotted owl critical habitat does occur within Sandoval County (see Figure 3). However, this area lies within a remote mountainous area approximately 25 miles southeast of the project area. Therefore, critical habitat for the Mexican spotted owl is not an issue for this project.

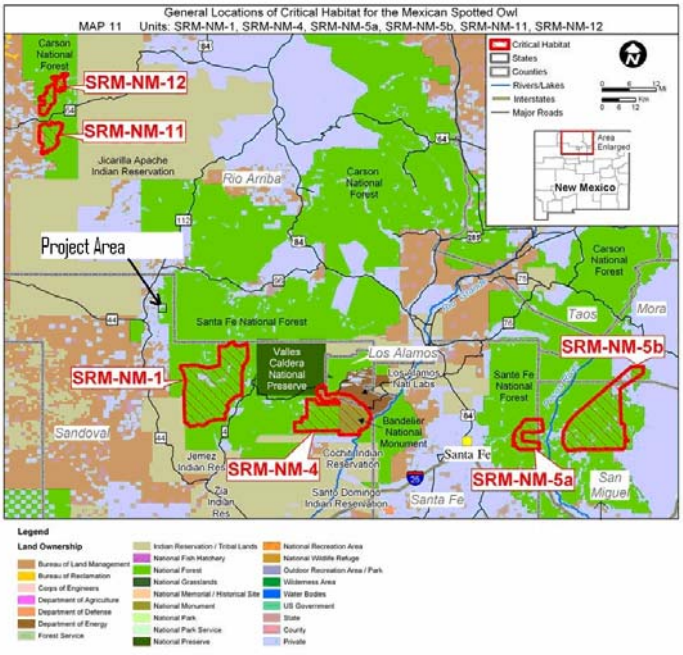

Figure 3. Map illustrating the Designated Critical Habitat for Mexican Spotted Owls in proximity to the project area.

3.3 CULTURAL RESOURCES

No prehistoric or historic archaeological sites, or other historic properties, other than the acequia itself, were found during the cultural resources survey or are known to occur within or immediately adjacent to De Los Utes Acequia. The acequia is considered eligible for inclusion into the National Register of Historic Places under Criterion (a) of 36 CFR 60.4. The proposed disturbances will be confined to two tap-boxes and 1,545 feet of the acequia itself, which will be altered from an open earth ditch to a buried pipe. The project has the potential to affect one historical element of the acequia, the "open ditch" design. However, the two places where the ditch runs near highly visible areas will be left open for aesthetic purposes. The proposed project will not affect other historic elements such as alignment and function, which contribute to the ditch's eligibility to the National Register. The two tap-boxes are not 50 years old or older, and do not contribute to the historic character of the acequia.

Consistent with the Department of Defense's American Indian and Alaska Native Policy, signed by Secretary of Defense William S. Cohen on October 28, 1998, and based on the State of New Mexico Indian Affairs Department's 2006 Native American Consultations List (as updated by the Corps), American Indian Tribes/Pueblos that have indicated they have concerns in Sandoval County have been contacted regarding the proposed project; these include the Comanche Indian Tribe, Hopi Tribal Council, Navajo Nation, Ohkay Owingeh, Pueblo of Isleta, Pueblo of Jemez, Pueblo of Laguna, Pueblo of San Felipe, Pueblo of San Ildefonso, Pueblo of Sandia, Pueblo of Santa Ana, Pueblo of Santa Clara, Pueblo of Santo Domingo, Pueblo of Zia, Jicarilla Apache Nation, and Pueblo de Cochiti. Informal consultation (scoping) letters were mailed to the Sandoval County Tribal list on September 22, 2006, with a single response from

Laguna Pueblo on September 28, 2006 indicating that they had no cultural resources concerns. To date, the Corps has received no indication of tribal concerns that will impact this project.

Based on this information, the Corps is of the opinion that there will be "No Adverse Effect to Historic Properties" by the proposed undertaking or on the historic and cultural resources of the region. The local area through which the acequia system flows is potentially eligible for inclusion to the National Register as a rural historic landscape under criteria (a), (c), and (d), although this nomination is outside the scope of this project. If the acequia near the highly visible areas is left as open, unlined ditch, the proposed rehabilitation project will have no adverse effect to the acequia system nor to the potentially eligible landscape.

3.4 LAND USE

The land in the proposed project area is rural, with landowners farming acreages of irrigated cropland and raising livestock (e.g., cattle, sheep and horses). Land use also includes rural residential housing. Recreational use of the proposed project area may include hiking, horseback riding, fishing, and nature appreciation. However, since the project area is located entirely on private land, these uses from the public sector are highly unlikely. The proposed action will not result in any significant alteration of existing or approved land uses. Only minor adverse impacts to land use will occur during construction activities due to increased noise and minor particulate air pollution.

The foreseeable effects of the proposed action on land-use practices will be beneficial. Construction of the proposed project will improve the efficacy of the De Los Utes Acequia System to irrigate existing croplands downstream of the pipeline project. The no action alternative will continue to require continual maintenance, and water conveyance down the acequia system will continue to be problematic.

3.5 SOCIO-ECONOMIC CONCERNS

The 2000 Census indicated that the population of Sandoval County was 89,908 persons (U.S. Census Bureau, 2000). Approximately 29 percent of Sandoval County inhabitants are of Hispanic or Latino origin with 51 percent being of Anglo-Caucasian decent. Sandoval County is approximately 3,709 square miles, and is moderately populated at about 24 persons per square mile.

There are no foreseeable effects of the proposed action on the socioeconomic resources in the construction project area. Any economic benefits of the proposed project will primarily go to contractors and their employees and the project will have little or no economic impact on the local population living in the immediate area. The action alternative and no action alternative will also have little or no effect on local community or economic development within the area.

3.6 ENVIRONMENTAL JUSTICE

Executive Order 12898 (Environmental Justice) requires "to the greatest extent practicable and permitted by law, and consistent with the principles set for in the report on the National Performance Review, each Federal agency shall make achieving environmental justice

part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations…" All work is in a rural, agricultural area. The construction will not disrupt or displace any residential or commercial structures. The work has been reviewed for compliance with this order, and it has been determined that neither the proposed plan nor the no action alternative will adversely affect the health or environment of minority or low-income populations. The draft EA has been distributed to all De Los Utes Acequia users, adjacent property owners and affected public.

3.7 AIR QUALITY

Under the Clean Air Act of 1972, as amended, the U.S. Environmental Protection Agency monitors ambient air quality standards. The project area is in attainment with National Ambient Air Quality Standards set by the U.S. Environmental Protection Agency.

Class 1 federal lands include areas such as national parks, national wilderness areas, and national monuments. These areas are granted special air quality protections under Section 162(a) of the federal Clean Air Act. The nearest Class 1 area to the project area will be located in the San Pedro Parks Wilderness Area, which is located approximately 3-5 miles directly to the east of the project area (see Figure 4). One small piece of mechanized equipment, a rubber-tired back-hoe, will be used to construct the project. The backhoe will release small amounts of exhaust emissions derived from diesel combustion. Cumulatively speaking, the emissions produced by constructing this project, including those derived from machinery, gas powered vehicles and tools, will not amount to a concentration able of being detected by particulate measuring devices in the Wilderness Area. Therefore activities associated with the De Los Utes Acequia Rehabilitation Project will have no detrimental effects to the air quality in this Class 1 Area.

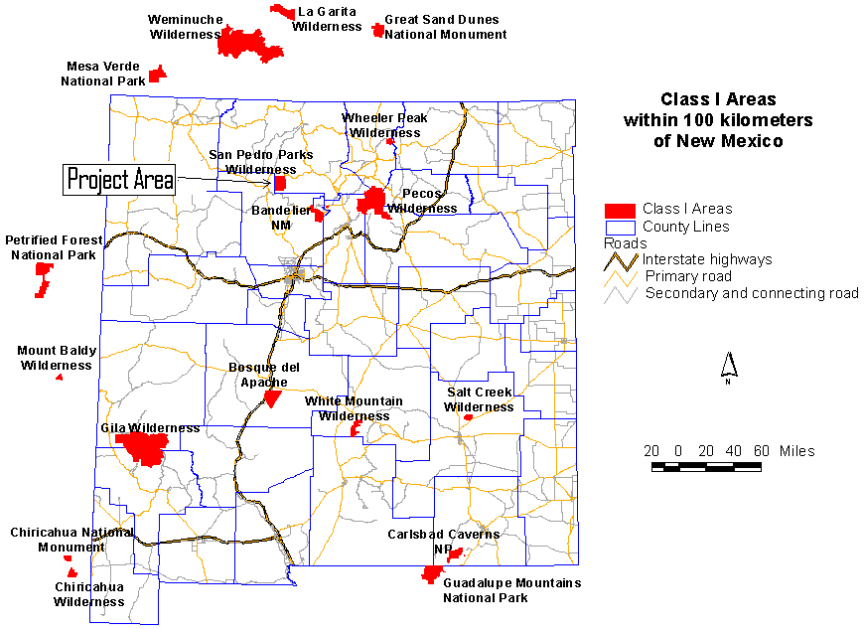

Figure 4. Map illustrating Designated Class 1 Air Quality Areas in New Mexico and Surrounding Region.

The proposed action will result in a temporary but negligible increase in suspended dust particles from construction activities and emissions associated with vehicles. Dust particles and emissions will be minimal and will not result in any permanent or significant short- or long-term detrimental effects on air quality. BMPs, such as equipment with water sprinklers, will be used during construction to minimize dust. Properly installed emission control devices will be used on all equipment and vehicles used in project construction. In the long term, the no-action and proposed action will have no effects on air quality.

3.8 AESTHETICS

The Los Utes Acequia Rehabilitation Project is located entirely on private property. Although portions of the ditch will be replaced by a covered pipe, two areas are scheduled to be left "un-touched" for aesthetic purposes. The proposed project will not substantially affect the visual aesthetics of the area in general. To ensure correct species mixes are used and recruitment rates are high, soils will be evaluated by the Natural Resources Conservation Service for reseeding. Although we expect that all mature trees within the project area will be protected, inadvertent mortality of individual trees is a possibility. Individual trees destroyed by construction work will be replaced as appropriate and specified in the projects plans and specifications documents supplied to the successful contractor. There will be no significant effects on aesthetic qualities from either the action alternative or the no action alternative.

3.9 NOISE

Background noise levels in the vicinity of the De Los Utes Acequia are typical for rural areas. During construction, noise will temporarily increase in the vicinity of the project area. These increases in noise will be derived from vehicle and construction equipment operation. The increase in background decibels will be minor and temporary, ending when construction is completed. Therefore, negligible effects are foreseen as a result of project implementation. The no-action alternative will have no effect on existing conditions.

3.10 CUMULATIVE IMPACTS

There have been several acequia rehabilitation projects funded through the joint efforts of the Corps, OSE, and the NRCS at other locations in New Mexico. As stated previously, a prior piping project was completed on the De Los Utes Acequia System in 1992 (520 feet). Other than this exception, no other rehabilitation projects, funded by a Federal Agency, have occurred on the De Los Utes Acequia System. During the Corps initial field visit to the De Los Utes Acequia in August of 2006, no negligible impacts to ecosystem health/integrity were observed due to the previous piping project of 1992. Where the ditch once flowed, riparian vegetation appeared to be healthy, and the only thing that seemed to be missing was the ditch. Because the acequia follows the historical drainage of Los Utes Creek, hydraulic processes of the watershed will continue to provide riparian dependent vegetation with ample amounts of water, with or without

a pipe. Additionally, wildlife did not appear displaced by the piping project, nor did we observe a change in behavior of several wildlife species due to the presence of a pipe.

Reconnaissance reviews of acequia rehabilitation projects across New Mexico have determined that they have little effect to ecosystem health in general and that cumulative impacts of all acequia rehabilitation projects are negligible. There are no known federal, state, or local projects, past or planned, in the vicinity of the project area that, in conjunction with this proposed project, will create a significant cumulative impact to the ecosystem or human environment.

The construction of the proposed project will not constitute, or contribute to any cumulative impact to fish and wildlife species. The proposed project will not permanently change the existing condition of the environment. Comparatively speaking, the affected area is relatively small, and since Los Utes Creek is essentially a "closed system" (does not contribute to a larger drainage) impacts to the ecosystem will be localized. Therefore, the impact of the proposed project to interrelated local and regional ecosystems will be negligible.

4.0 CONCLUSIONS

The no-action alternative will provide for no Federal assistance for design or rehabilitation construction beyond this study. Therefore, no Federal funding will be utilized to assist the De Los Utes Acequia Association. The irrigation ditch will continue to experience constant maintenance issues and water losses due to evaporation and ground infiltration vectors. Dilapidated infrastructure will continue to degrade, and many of the acequia association members will go without reliable irrigation water.

The preferred alternative will decrease maintenance costs and improve water conveyance downstream of the main diversion to several irrigators who have not historically been able to use any of their allocated water right. In a relatively short period of time, the project will pay for itself in reduced maintenance costs and reliable flows, which will allow the irrigators and water right owners to produce more agricultural product. The BMPs described in this EA, and in the plans and specifications documents provided to the contractor, will be utilized during construction to ensure environmental project success and protect biological and cultural resources. Specific measures to provide environmental and cultural resource protection during construction will be written into contract plans and specifications as part of the contractors Environmental Protection Plan (EPP). Specifications of the contract will be reiterated during the pre-construction conference held prior to the start of construction. Attendees at this meeting will include representatives from the Corps, the De Los Utes Acequia Association, and the successful bidding contractor. Measures concerning the environment will provide for control of noise, air and water pollution, erosion, and aesthetic degradation, as well as protection of vegetation and fish and wildlife resources including special status species and their associated habitats.

Disturbed areas will be reseeded with native, indigenous plants, insofar as contract activities resulted in noticeable damage to existing plants and vegetative ground cover. If BMPs and environmental protection specifications included in the contractors EPP and the construction contract are adhered to, the planned action will result in only minor or temporary impacts on vegetation, air quality and noise levels. These control measures are specified in accordance with

all Federal, State, and local regulations. Therefore, the proposed construction project will have negligible direct and indirect effects to the resources associated with the proposed project.

Only short term negligible adverse effects to land use, aesthetics, soils, air, noise, vegetation, and wildlife will occur during construction. No impacts will occur to land use (long-term), climate, wetlands, waters of the U.S., special status species, floodplains, socioeconomics, environmental justice or cultural resources. The project will benefit soil stability, land use, and water resources. The proposed project will not result in any moderate or significant, short-term, long-term or cumulative adverse effects.

5.0 PREPARATION

This EA was prepared by the U.S. Army Corps of Engineers, Albuquerque District, 4101 Jefferson Plaza NE, Albuquerque, New Mexico, 87109-3435.

Document Preparation

Patty Phillips, Project Manager
Brett Thompson, Fisheries Biologist
Lance Lundquist, Archaeologist

Quality Control/Independent Technical Review

William DeRagon, Biologist
Gregory Everhart, Archaeologist
Julie Hall, Supervisory Ecologist

6.0 CONSULTATION AND COORDINATION

The Draft Environmental Assessment for this project was made available in digital format at the U.S. Army Corps of Engineers Albuquerque District's web page at: http://www.spa.usace.army.mil/FONSI/DEFAULT.htm. The following federal, state, tribal, and private entities were notified of the availability of the draft EA through verbal or electronic mail notification.

De Los Utes Acequia Association
Sandoval County Clerk
The city of Cuba, New Mexico
U.S. Fish and Wildlife Service, New Mexico Ecological Services State Office
Natural Resources Conservation Service, Santa Fe Field Office
New Mexico Department of Energy, Minerals, and Natural Resources
New Mexico Office of the State Engineer (Santa Fe and Albuquerque Offices)
New Mexico Interstate Stream Commission
New Mexico State Historic Preservation Bureau
New Mexico Department of Game and Fish
New Mexico Environment Department
New Mexico State Historic Preservation Officer

6.0 REFERENCES

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Appendix A: Public Review Notice.

Notice of Availability

Pursuant to the Council on Environmental Quality regulations that implement the National Environmental Policy Act, the U.S. Army Corps of Engineers, Albuquerque District in cooperation with the State Engineer's Office of the State of New Mexico, the Natural Resources Conservation Service (NRCS), and the De Los Utes Acequia Association is preparing an Environmental Assessment for a proposed project to rehabilitate portions of the De Los Utes Acequia system.

The De Los Utes Diversion, and associated acequia system is located along Los Utes Creek in Sandoval County, New Mexico. The project area is located approximately 4 miles northeast of Cuba, Sandoval County, New Mexico and is owned by members of the De Los Utes Acequia Association.

The proposed plan is to install 1545 feet of twelve-inch PVC pipe into the existing open earthen ditch. Two lateral diversion structures (2-inch line tap-out boxes), which laterally service smaller open-earthen ditches, will also be replaced/rebuilt. And one 12-inch sluice box will be installed approximately half way down the new pipeline.

Copies of the Draft EA will be available for public review beginning November 24, 2006, at the Cuba, New Mexico Post Office located at: 6358 Main St. Cuba, NM 87013. And on the internet at: http://www.spa.usace.army.mil/FONSI/DEFAULT.htm.

You are invited to provide written comments to Brett Thompson, U.S. Army Corps of Engineers, 4101 Jefferson Plaza NE, Albuquerque, NM 87109, postmarked no later than Friday, December 22, 2006, or via email to: brett.w.thompson@usace.army.mil. Hard copies of the EA are available by request.

APPENDIX B: Public Comments and Responses to Comment.

Only one comment(s) was received in response to the above solicitation. This response came from Sandoval County. Their comments are listed below. We concurred with their comments and subsequent changes were made to the final document.

After reviewing the subject document, I submit the following comments / observations:

Page ii:	Paragraph 3	"... Los Trigos Community Ditch..." should be De Los Utes
Page iii:	Last line of text	same as above
Page 5:	4 locations	Text refers to Casuas; in page 30 (References) is to Casaus
Page 8:	Line above 2.3	Casuas (as above)
Page 10:	Last Paragraph	"Redolono Peak" should probably be Redondo Peak
Page 12:	First Para, lines 3 & 14	"its' " should be "its" (no apostrophe)
Page 13:	Paragraph 5	"...at eh..." should probably be "...at the..."
Page 18:	Paragraph 2 line 5	"...streams..." should have an apostrophe: "...stream's..."
	Last line	"...its' rarity..." should be "...its rarity..." (no apostrophe)
Page 27:	Figure 4	Box showing project area is misplaced; reposition appropriately
Page 30:	References	"Casaus, A." should agree with comments above refering to Casuas (whichever is correct; it is our belief that CASAUS is the correct spelling)

Looks like a good product to me. Thanks for the opportunity to review it.

Please change your data base to indicate my name (below) instead of Victoria Dunlap (previous County Clerk), unless there is some requirement that you submit through that office, in which case, the current County Clerk is Sally Padilla.

Thanks again for the chance to review your product. I am sure l learned more from the process than you will possibly benefit from my few comments.

Guy Bralley
Water & Wastewater Specialist
Sandoval County Development
711 Camino Del Pueblo
Bernalillo, NM 87004
(505) 771-7953 (Desk)
(505) 362-6902 (Cell)

APPENDIX C: (Project Area Photographs)

Photo 1. De Los Utes Acequia ditch flowing through the reach scheduled to be piped.

Photo 2. Reach of De Los Utes Acequia where a pipeline (500 feet) was installed in 1992.

Photo 3. Current plywood/tarpaulin dams, which service perpendicular pasturelands via lateral ditches.

Photo 4. Main diversion structure of De Los Utes Acequia. The entire flow of Los Utes Creek is taken down the acequia at this diversion point.

Photo 5. Irrigated alfalfa hay field, which is serviced by the De Los Utes Acequia System.

Photo 6. Home of an acequia association member where vehicles, supplies, and construction equipment will be staged during project implementation.